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ABSTRACT

This notebook contains criterion-referenced test items for testing students' knowledge of small engines. The test items are based upon competencies found in the Missouri Small Engine Competency Profile. The test item bank is organized in 18 sections that cover the following duties: shop procedures; tools and equipment; fasteners; servicing fuel systems; servicing governor systems; servicing electrical systems; servicing ignition systems; servicing lubrication systems; servicing cooling systems; servicing exhaust systems; servicing recoil starting systems; servicing electrical starting systems; troubleshooting; overhauling four-stroke-cycle engines; overhauling two-stroke-cycle engines; transmissions, clutches, and brakes; maintenance of lawn and garden equipment; and leadership. Contains a list of 14 references used in creating the test items. (KC)

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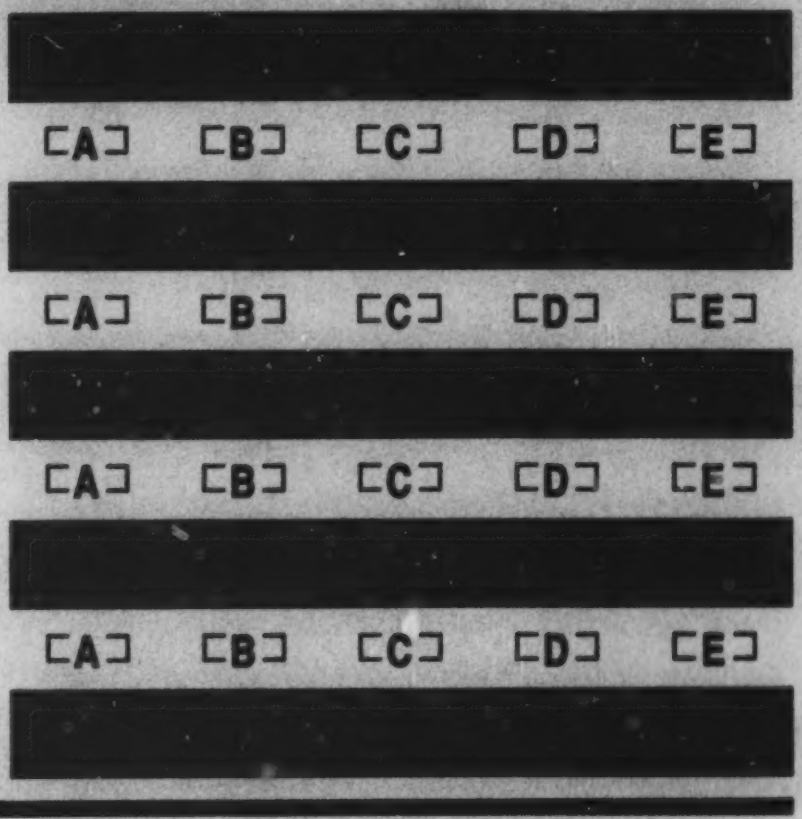

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Criterion-Referenced Test Items for SMALL ENGINES

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Criterion-Referenced Test (CRT) Items for

SMALL ENGINES

by

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FOREWORD

Rapid advances in technology are placing heavy demands on both teachers and students in vocational education. These Criterion-Referenced Test Items for Small Engines are designed to help meet those demands.

All test writers face one basic challenge: to produce test items that accurately measure what they are intended to measure. This challenge was kept firmly in mind by all those who participated in the development of the bank. The items in the bank are based upon competencies found on the Missouri Small Engines Competency Profile. Much care was taken to ensure that the test items will accurately measure a student's knowledge in regard to these competencies. Every effort was made to ensure the items are presented in a fair and unbiased matter.

The items in this book are designed to work with both the Vocational Instructional Management System (VIMS) and VAMS. The test item bank will allow instructors and administrators to manage testing and evaluation activities in the most efficient way possible. Instructors pulling items from this bank for individual tests should still evaluate the new test to see that one question does not give away the answer to another question. For word processing and test-item generation purposes, an ASCII disk of the item bank has been included with this printed copy.

This test bank should be viewed as a beginning. It is hoped that future revisions and additions will build the bank into an even more powerful and reliable evaluation and management tool.

Pat Muenks, supervisor
Industrial Education
Department of Elementary and Secondary Education

Charles "Chuck" Waibel, director
Industrial Education
Department of Elementary and Secondary Education

ACKNOWLEDGMENTS

These Criterion-Referenced Test (CRT) Items for Small Engines represent a continuing commitment to Missouri's Vocational Instructional Management System (VIMS). The bank is keyed to the Small Engines Competency Profile developed by industry and education professionals in the state. The cycle of curriculum development includes the following steps:

1. Development of the competency profile
2. Instructional analysis
3. Search for existing materials and/or a crosswalk of existing curriculum materials to the competency profile
4. Development of the curriculum guide
5. Field-test of the curriculum guide
6. Development of mediated curriculum (videos)
7. Development of the test-item bank

To ensure that test items are firmly based on information available to students, development of the test-item bank is the final component in the development cycle.

Items in this bank were written by Amon Herd of the Instructional Materials Laboratory, who has extensive experience in small engine repair, adult education, and vocational education. These items were technically reviewed by Charles Oviatt, educational consultant, Vienna. The following teachers contributed as advisory committee members and fieldtesters of these items.

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Gene Emmerick, Joe Herndon Area Vocational-Technical School, Raytown
Keith James, Fort Osage Area Vocational-Technical School, Independence
Glen Marshall, Unitec Career Center, Bonne Terre

Support and contributions of IML staff members were instrumental to this project's development.

Harley Schlichting, director
Phyllis Miller and Dan Stapleton, assistant directors
Janice Trimble, word processor III
Felicia Lathon and Zuaelie Ahmed, student assistants

REFERENCES USED FOR SMALL ENGINES CRTs

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Amer. Tech	Webster, Jay. *Small Engines Operation and Service.* Chicago: American Technical Publishers, 1981.
Auto. Mech. CRT	*Criterion-Referenced Test (CRT) Items for Auto Mechanics.* University of Missouri-Columbia: Instructional Materials Laboratory, 1990.
Briggs	*Service and Repair Instructions for Single-Cylinder, Four-Cycle Engines.* Milwaukee, Wi: Briggs and Stratton, 1990.
Goodheart	Roth, Alfred C. *Small Gas Engines.* South Holland, IL: Goodheart-Willcox Company, Inc., 1992.
Hobar	Hoerner, Harry J., W. Forrest Bear, and Donald L. Ahrens. *Small Gasoline Engines, Operation, Repair and Maintenance.* St. Paul, MN: Hobar Publications, 1992.
IML Mod. 4	Herd, Amon. *Step-by-Step Procedures for Service and Repair of Small Engines: Compression Valve Service and Repair.* University of Missouri-Columbia: Instructional Materials Laboratory, 1993.
IML Mod. 7	Herd, Amon. *Step-by-Step Procedures for Service and Repair of Small Engines: Troubleshooting Small Engines.* University of Missouri-Columbia: Instructional Materials Laboratory, 1993.
John Deere	*Fundamentals of Service: Fasteners.* Moline, IL: Deere and Company, 1979.
Lawn Boy	*Mechanics Handbook.* Galesburg, IL: Outboard Marine Corporation, 1990.
MAVCC	Hires, Bill, Mark Taylor, Mike Bundy, and Amon Herd. *Small Engine Repair.* Stillwater, OK: Mid-America Vocational Curriculum Consortium, 1985.
McGraw-Hill	Crouse, William H., and Donald L. Anglin. *Small Engine Mechanics,* 2nd ed. New York: Gregg Division, McGraw-Hill Book Company, 1980.
MS CRT	*Criterion-Referenced Test (CRT) Items for Machine Shop.* University of Missouri-Columbia: Instructional Materials Laboratory, 1991.
Sears	*Sears Owner's Manual (502-254970).* Chicago: Sears, 1993.

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Field	Contents	Field	Contents
1	Unique item number	5	Date (MMYY)
2	Duty area and task number (Mo. competency profile)	6	Learning domain (Cognitive, Affective, Psychomotor)
3	Letter of correct answer	7	Writer(s)/reviewer(s)
4	Source (author, year of publication)	8	Accompanying artwork (ART)

.....

1. | A1 | b | MAVCC | 0194 | C | A. Herd |

Which color code designates the location of safety and first aid equipment?

a. Yellow

b. Green

c. Red

d. Blue

.....

2. | A1 | c | MAVCC | 0194 | C | A. Herd |

Which type of fire extinguisher can be used on Class B, C and D fires?

a. Carbon dioxide (CO_2)

b. Pressurized water

c. Dry chemical

d. Foam

.....

3. | A1 | c | MAVCC | 0194 | C | A. Herd |

How is a foam fire extinguisher held when in use?

a. Sideways

b. Upright

c. Upside down

d. 45° angle

.....

4. | A1, B5 | d | MS CRT | 0194 | C | A. Herd |

What is the best way to get a machine operator's attention?

a. Tap the person on the shoulder.

b. Turn off the machine.

c. Shout in the person's ear.

d. Wait until the operator shuts off the machine.

.....

5. | A1, B5 | c | MS CRT | 0194 | C | A. Herd |

What should always be worn when operating a drill press?

a. Rings

b. Loose clothing

c. Safety glasses

d. Gloves

.....

6. | A1, B5 | c | MS CRT | 0194 | C | A. Herd |

What should be done before servicing a drill press?

a. Run at high speed

b. Run at low speed

c. Unplug machine

d. Remove spindle

Field	Contents	Field	Contents
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.....

7. | A2 | d | MAVCC | 0194 | C | A. Herd |

What type of socket should be used with an air wrench?

a. Shallow 6 point.

b. Shallow 12 point

c. Deep 6 point

d. Impact 6 point

.....

8. | A2 | b | John Deere | 0194 | C | A. Herd |

A blade marked "6" indicates .06" (six hundredths of an inch).

a. True

b. False

.....

9. | A2 | b | John Deere | 0194 | C | A. Herd |

What tool is used to tighten bolts and nuts to exactly the correct degree?

a. Open-end wrench

b. Torque wrench

c. Adjustable wrench

d. Box wrench

.....
10. | A3 | a | John Deere | 0194 | C | A. Herd |

What tool is used to measure accurately the space between two surfaces?

a. Feeler gauge

b. Outside micrometer

c. Dial indicator

d. Dial gauge

.....
11. | A3 | a | Goodheart | 0194 | C | A. Herd |

The micrometer should NOT be held in the hand for a long period of time because body heat can cause inaccuracy in the instrument.

a. True

b. False

.....
12. | A3 | a | Goodheart | 0194 | C | A. Herd |

Which gauge is used to measure the inside diameter of a hole?

a. Telescoping

b. Feeler

c. Wire

d. Dial

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.....

13. | A4 | a | Amer. Tech. | 0194 | C | A. Herd |

A perpetual inventory keeps track of merchandise in stock, withdrawn and on hand at any given time.

a. True

b. False

.....

14. | A4 | b | Amer. Tech. | 0194 | C | A. Herd |

Model, type and code numbers are optional in ordering parts for Briggs and Stratton engines.

a. True

b. False

.....

15. | A4 | a | Amer. Tech. | 0194 | C | A. Herd |

What type of manual comes with a new engine?

a. Owner's

b. General repair

c. Manufacturer's shop

d. Blue

.....
16. | A5 | a | Briggs | 0194 | C | S. Chamberlain |

What helps a mechanic determine time needed for a job?

a. Flat Rate Manual

b. OSHA manual

c. Manúfacturer's shop manual

d. Owner's manual

.....
17. | A5 | c | Briggs | 0194 | C | S. Chamberlain |

Before any work is performed on an engine, how should the owner's permission be obtained?

a. Calling on the telephone

b. By customer filling out work order

c. Using a written estimate and work order

d. Explaining repairs when the engine is picked up

.....
18. | A5 | b | Briggs | 0194 | C | S. Chamberlain |

What should be done before beginning work on an engine?

a. Test the engine first.

b. Disconnect the spark plug.

c. Drain the oil.

d. Remove the spark plug.

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.....

1. | B1 | a | Amer. Tech. | 0194 | C | A. Herd |

Which tool is used to cut external threads?

a. Die

b. Tap

c. Twist drill

d. Die stock

.....

2. | B1 | b | John Deere | 0194 | C | A. Herd |

Adjustable wrenches can be used just like open-end wrenches by "turning" them over.

a. True

b. False

.....

3. | B1 | c | John Deere | 0194 | C | A. Herd |

If a torque reading calls for 5 foot-pounds, how much is that in pound-inches?

a. 40

b. 48

c. 60

d. 70

.....
4. | B2 | b | John Deere | 0194 | C | A. Herd |

When using a hacksaw, how many teeth should always be contacting the material?

a. Four

b. Three

c. One

d. Does not matter

.....
5. | B2 | b | John Deere | 0194 | C | A. Herd |

When taking a reading with an outside micrometer, clamp it tightly over the work to be sure of an accurate reading.

a. True

b. False

.....
6. | B2 | a | John Deere | 0194 | C | A. Herd |

When filing, always do the cutting on the forward (or pushing) stroke.

a. True

b. False

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.....

7. | B3 | c | Briggs | 0194 | C | A. Herd |

What measurement is quickly made with a plug gauge?

a. Thickness

b. Slot width

c. Hole diameter

d. Hole depth

.....

8. | B3 | a | Briggs | 0194 | C | A. Herd |

Which plug or ring gauges are used to check maximum and minimum sizes accurately?

a. Go and no-go gauges

b. Jo blocks

c. Reference standards

d. Micrometer gauges

.....

9. | B3 | a | Briggs | 0194 | C | A. Herd |

Inside and outside micrometers are read the same way.

a. True

b. False

.....
10. | B4 | d | Goodheart | 0194 | C | S. Chamberlain |

What tool is used for most precision measuring (to three decimal places)?

a. Metric ruler

b. Caliper

c. Depth gauge

d. Dial caliper

.....
11. | B4 | a | Goodheart | 0194 | C | S. Chamberlain |

Which describes vernier calipers?

a. There is no dial.

b. Faster to read

c. Less accurate

d. All of the above

.....
12. | B4 | a | Goodheart | 0194 | C | A. Herd |

What does the telescoping gauge measure?

a. Inside diameters

b. Outside diameters

c. Depth of cylinders

d. Valve angles

20

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13. | B5, A1 | d | MS CRT | 0194 | C | A. Herd |

What is the best way to get a machine operator's attention?

a. Tap the person on the shoulder.

b. Turn off the machine.

c. Shout in the person's ear.

d. Wait until the operator shuts off the machine.

.....

14. | B5, A1 | c | MS CRT | 0194 | C | A. Herd |

What should always be worn when operating a drill press?

a. Rings

b. Loose clothing

c. Safety glasses

d. Gloves

.....

15. | B5, A1 | c | MS CRT | 0194 | C | A. Herd |

What should be done before servicing a drill press?

a. Run at high speed

b. Run at low speed

c. Unplug machine

d. Remove spindle

.....
16. | B6 | d | MS CRT | 0194 | C | A. Herd |

Which maintenance procedure does NOT apply to an air compressor?

a. Draining the water from the tank daily

b. Cleaning or replacing vent filters weekly

c. Changing the compressor oil monthly

d. Replacing breaker fuses monthly

.....
17. | B6 | a | MS CRT | 0194 | C | A. Herd |

What advantage is gained by center-punching a piece of metal before drilling a hole in it?

a. The drill is prevented from wandering.

b. A dull drill bit can be used.

c. The metal's paint is protected.

d. Less drilling time is required.

.....
18. | B6 | c | MS CRT | 0194 | C | A. Herd |

Air tools should normally be operated with NOT more than how many pounds of air pressure?

a. 45

b. 55

c. 90

d. 110

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.....
19. | B7 | b | MS CRT | 0194 | C | A. Herd |

On a surface grinder, which tool is best for dressing the grinding wheel?

a. High speed tool

b. Diamond tipped

c. Carbide tipped

d. Carbon steel

.....
20. | B7 | a | MS CRT | 0194 | C | A. Herd |

What should always be done when tapping a hole using the drill press?

a. Align hole to be tapped.

b. Set drill press at high speed.

c. Hold part by hand.

d. Tap part without cutting oil.

.....
21. | B7 | b | MS CRT | 0194 | C | A. Herd |

What threads are cut when using a starting tap?

a. External

b. Internal

c. Rolled

d. Acme

.....
22. | B8 | a | MS CRT | 0194 | C | A. Herd |

What is one cause of grinding wheel chatter?

a. Poorly dressed wheel

b. Wheel that is too soft

c. Too much coolant

d. Too strong a magnet

.....
23. | B8 | b | MS CRT | 0194 | C | A. Herd |

A wheel that is out-of-balance will NOT cause chatter.

a. True

b. False

.....
24. | B8 | c | IML Mod. 7 | 0194 | C | A. Herd |

What should be done if a person is cut by a grinding wheel?

a. Wash the cut with coolant.

b. Keep working.

c. Report to instructor.

d. Warn others to be careful.

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25. | B9 | b | MS CRT | 0194 | C | A. Herd |

When should the hand tap be removed from the drill chuck?

a. After about one turn

b. After it has been turned 3-4 times

c. About 1" through part

d. When tapping aluminum

.....

26. | B9 | a | Amer. Tech. | 0194 | C | A. Herd |

A die is used with a die stock to make or repair outside threads.

a. True

b. False

.....

27. | B9 | b | Amer. Tech. | 0194 | C | A. Herd |

A tap is used with a tap wrench to make or repair outside threads.

a. True

b. False

Field	Contents	Field	Contents
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.....

1.	C1	a	MAVCC	0194	C	A. Herd

SAE grade and metric bolts are identified by markings on the heads of the bolt.

a. True

b. False

.....

2.	C1	b	Amer. Tech.	0194	C	A. Herd

A stud has threads only on one end.

a. True

b. False

.....

3.	C1	a	MAVCC	0194	C	A. Herd

Snap rings can be either external or internal.

a. True

b. False

4.	C2	b	MAVCC	0194	C	A. Herd

Which is the proper tool to restore bolt threads?

a. Rethreading tap

b. Rethreading die

c. Die stock

d. Hand tap

5.	C2	b	Goodheart	0194	C	S. Chamberlain

What tool is used to measure the bore?

a. Plug gauge

b. Inside micrometer

c. Outside micrometer

d. Feeler gauge

6.	C2	a	MAVCC	0194	C	A. Herd

American National Standards established the unified screw thread standard.

a. True

b. False

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.....

1. | D1 | a | AAVIM | 0194 | C | A. Herd |

What is the chief reason for a fuel pump to deliver a weak or erratic gasoline flow?

a. Leak in the diaphragm

b. Atmospheric pressure too high

c. Bent camshaft

d. Bent crankshaft

.....

2. | D1 | d | AAVIM | 0194 | C | A. Herd |

Which best describes check valves in a fuel pump?

a. Spring-loaded steel balls

b. Flapper valves

c. Floating disks

d. All of the above

.....

3. | D1 | a | Goodheart | 0194 | C | A. Herd |

Fuel pumps provide a constant, pressurized fuel flow to the carburetor under changing conditions.

a. True

b. False

.....
4. | D2 | a | Briggs | 0194 | C | A. Herd |

The fuel filter prevents dirt or foreign matter from entering the carburetor.

a. True

b. False

.....
5. | D2 | c | McGraw-Hill | 0194 | C | A. Herd |

Where is the fuel strainer located?

a. Air cleaner

b. Carburetor

c. Fuel tank

d. Fuel pump

.....
6. | D2 | d | Briggs | 0194 | C | A. Herd |

What is the purpose of opening the shut-off valve and draining out some fuel?

a. Choke the engine

b. Cause air pollution

c. Prevent vapor lock

d. Remove dirt in the fuel line

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.....

7.	D3	b	AAVIM	0194	C	A. Herd

Plastic and aluminum fuel tanks are the easiest ones to repair because they are so lightweight.

a. True

b. False

.....

8.	D3	a	AAVIM	0194	C	A. Herd

Tank strainers and fuel lines should be cleaned with a petroleum solvent.

a. True

b. False

.....

9.	D3	b	AAVIM	0194	C	A. Herd

When working on any fuel tank, it is necessary to first remove the carburetor.

a. True

b. False

.....
10. | D4 | d | AAVIM | 0194 | C | A. Herd |

Where does most wear in needle valves occur?

a. At the screwdriver slot

b. On their springs

c. On their outside diameter

d. Where they seat

.....
11. | D4 | a | AAVIM | 0194 | C | A. Herd |

Which pertains to installing the pump diaphragm?

a. The smooth side of the cup must rest against the diaphragm.

b. The rough side of the cup must rest against the diaphragm.

c. The closed side of the cup must rest against the diaphragm.

d. None of the above

.....
12. | D4 | d | AAVIM | 0194 | C | A. Herd |

Which type of carburetor is required for chain saws?

a. Suction-feed

b. Pressure-feed

c. Quad

d. Diaphragm

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.....

13. | D5 | c | AAVIM | 0194 | C | A. Herd |

Which is true regarding carburetor floats?

a. If set too high, they block the flow of gasoline.

b. If set too low, they flood the carburetor.

c. If stuck open, they flood the carburetor.

d. If stuck open, they starve the carburetor.

.....

14. | D5 | a | AAVIM | 0194 | C | A. Herd |

Which describes how some carburetor floats are made to prevent them from absorbing gasoline?

a. Varnished cork

b. Cleaned in strong solvents

c. Solid rubber

d. Metal capsules

.....

15. | D5 | b | AAVIM | 0194 | C | A. Herd |

The technician should adjust for carburetor flooding by lowering the float drop adjustment.

a. True

b. False

.....
16. | D6 | a | Briggs | 0194 | C | A. Herd |

All carburetor adjustments must be made with the air cleaner installed.

a. True

b. False

.....
17. | D6 | d | Goodheart | 0194 | C | A. Herd |

When does the richest air-fuel mixture take place?

a. Full throttle

b. Half throttle

c. Idling

d. Starting

.....
18. | D6 | b | Briggs | 0194 | C | A. Herd |

Which causes a fuel mixture that is too rich?

a. Too much air for the amount of fuel

b. Too much fuel for the amount of air

c. Clogged fuel filter

d. Leak in fuel pump diaphragm

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.....

19. | D7 | a | Briggs | 0194 | C | A. Herd |

Wash an oil-bath air cleaner with solvent and refill with the same type of oil used in the crankcase.

a. True

b. False

.....

20. | D7 | b | Briggs | 0194 | C | A. Herd |

According to most recommendations, how often should a small engine air cleaner be serviced?

a. Every year

b. After every 25 hours of operation

c. Every winter and summer

d. After every 250 hours of operation

.....

21. | D7 | d | Briggs | 0194 | C | A. Herd |

What does a torn air-cleaner mounting gasket allow?

a. More trapped dirt in the air cleaner

b. Longer-lasting filter

c. Longer-lasting engine

d. Dirt in the engine

.....
22. | D8 | a | Briggs | 0194 | C | A. Herd |

When should a polyurethane filter be replaced?

a. When it becomes brittle and will crumble

b. When it has been in service for six months

c. When it has been in service for 12 months

d. None of the above

.....
23. | D8 | a | Briggs | 0194 | C | A. Herd |

What is the normal air-fuel mixture by weight?

a. 15 to 1

b. 12 to 1

c. 20 to 1

d. 25 to 1

.....
24. | D8 | b | Briggs | 0194 | C | A. Herd |

With what are oil-foam air cleaners cleaned?

a. Gasoline

b. Soap and water

c. Oil

d. None of the above

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.....

25. | D9 | d | Amer. Tech. | 0194 | C | A. Herd |

Which best describes a periodic maintenance job?

a. Checking the oil

b. Changing the oil

c. Air cleaner service

d. All of the above

.....

26. | D9 | a | Amer. Tech. | 0194 | C | A. Herd |

Paper cartridge air cleaners offer six times the filtering area over oil-foam cleaners.

a. True

b. False

.....

27. | D9 | b | Amer. Tech. | 0194 | C | A. Herd |

Oil a paper cartridge air cleaner or use pressurized air to clean or dry it.

a. True

b. False

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.....

1. | E1 | c | AAVIM | 0194 | C | A. Herd |

What is the main function of a governor on a small engine?

a. Prevent overspeeding

b. Prevent underspeeding

c. Prevent under- and overspeeding

d. None of the above

.....

2. | E1 | a | AAVIM | 0194 | C | A. Herd |

The two types of governors used on small engines are the air-vane type and the centrifugal type.

a. True

b. False

.....

3. | E1 | a | AAVIM | 0194 | C | A. Herd |

As the air vane on a governor moves, the throttle valve closes accordingly, bringing the engine speed back in line with the speed selected.

a. True

b. False

.....
4. | E2 | b | AAVIM | 0194 | C | A. Herd |

Increased engine load increases the force on the governor linkage, and reduces the fuel-air mixture.

a. True

b. False

.....
5. | E2 | a | Briggs | 0194 | C | A. Herd |

What happens to a governor as the engine speeds up?

a. Flyweights extend outward.

b. Flyweights extend inward.

c. Governor spring closes the throttle.

d. None of the above

.....
6. | E2 | b | Briggs | 0194 | C | A. Herd |

With the engine stopped, the throttle valve is held closed by spring tension from the governor.

a. True

b. False

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.....

7. | E3 | a | Goodheart | 0194 | C | G. Marshall |

What does a tachometer measure?

a. Engine rpm

b. Engine mfd

c. Engine tdc

d. SAE

.....

8. | E3 | d | Goodheart | 0194 | C | G. Marshall |

What can excessive engine rpm cause?

a. Premature engine wear

b. Internal engine damage

c. Engine overheating

d. All of the above

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.....

1. | F1 | b | Goodheart | 0194 | C | Committee |

An ohmmeter should never be used on what type of circuit?

a. Dead

b. Live

c. Open

d. Shorted

.....

2. | F1 | b | AAVIM | 0194 | C | Committee |

When using a multimeter to check a battery's voltage, on what should the meter be set?

a. AC voltage

b. DC voltage

c. Ohms

d. Amps

.....

3. | F1 | a | Goodheart-Willcox | 0194 | C | A. Herd |

Before the coil test is done on the engine, the cqndenser and coil leads must be disconnected at the terminal.

a. True

b. False

```
.....
4.  | F1 | b  | Goodheart     | 0194    | C  | A. Herd |
```

The solid-state ignition unit can be tested on the engine.

a. True

b. False

41

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.....

5. | F2 | b | MAVCC | 0194 | C | Committee |

When using an ammeter, how should the meter be hooked up?

a. Perpendicular

b. In series

c. Parallel

d. Series-parallel

.....

6. | F2 | a | AAVIM | 0194 | C | S. Chamberlain |

The extent of an engine's tune-up usually is determined by the amount of time since the last servicing.

a. True

b. False

.....

7. | F2 | a | AAVIM | 0194 | C | S. Chamberlain |

The service technician should follow a definite and thorough analysis and correct all performance problems.

a. True

b. False

.....
8. | F3 | b | MAVCC | 0194 | C | Committee |

Setting a battery on concrete can rapidly discharge the battery.

a. True

b. False

.....
9. | F3 | b | AAVIM | 0194 | C | C. Oviatt |

When a battery is removed, the grounded-battery-terminal cable clamp is disconnected last.

a. True

b. False

.....
10. | F3 | b | McGraw-Hill | 0194 | C | A. Herd |

Corroded battery terminals can be cleaned easily by using baking powder and water.

a. True

b. False

.....
11. | F3 | a | McGraw-Hill | 0194 | C | A. Herd |

The higher the electrolyte's specific gravity, the lower the electrolyte's freezing point will be.

a. True

b. False

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.....

12. | F3 | a | McGraw-Hill | 0194 | C | A. Herd |

The battery could explode by connecting the booster cables backward.

a. True

b. False

.....

13. | F3 | c | Goodheart | 0194 | C | C. Oviatt |

Which instrument is used to test the charge of a lead-acid storage battery?

a. Ammeter

b. Voltmeter

c. Hydrometer

d. Ohmmeter

.....

14. | F3 | d | Goodheart | 0194 | C | C. Oviatt |

Which is the best way to know when a battery is fully charged when it is connected to a charger?

a. Battery temperature reaches 100F.

b. Bubbles begin to rise in each cell.

c. Resistance of the battery is nearly zero.

d. There is no further rise in gravity for two hours.

.....
15. | F4 | a | Sears | 0194 | C | Committee |

When a safety interlock is determined to be faulty, one should NOT bypass it with a jumper lead.

a. True

b. False

.....
16. | F4 | a | Sears | 0194 | C | Committee |

A safety interlock is a device which may keep the engine from starting or kill a running engine.

a. True

b. False

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.....

17. | F5 | b | McGraw-Hill | 0194 | C | A. Herd |

How can a technician tell if the drive belt tension is correct?

a. Belt can be pushed in 1".

b. Belt can be pushed in 1/2".

c. Belt has no slack.

d. None of the above

.....

18. | F5 | a | McGraw-Hill | 0194 | C | A. Herd |

When the battery is overcharging, the cause is probably a defective rectifier regulator.

a. True

b. False

.....

19. | F5 | a | McGraw-Hill | 0194 | C | A. Herd |

Before reinstalling a battery, the battery's polarity should be checked with a voltmeter to tell which terminal post is connected to ground.

a. True

b. False

.....
20. | F5 | d | Goodheart | 0194 | C | Committee |

Which best describes a diode's function?

a. Allows current to flow in only one direction

b. Changes AC to DC voltage

c. Is a part of the charging system

d. All of the above

.....
21. | F5 | a | AAVIM | 0194 | C | Committee |

If a stator shows no continuity to ground, the unit should be replaced.

a. True

b. False

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.....

22. | F6 | c | AAVIM | 0194 | C | Committee |

Which instrument is used to test an oil-pressure gauge?

a. Tachometer

b. Ammeter

c. Ohmmeter

d. Dwellmeter

.....

23. | F6 | a | Sears | 0194 | C | Committee |

If a sending unit is in the normal "on" mode, it will show resistance.

a. True

b. False

.....

24. | F6 | d | Sears | 0194 | C | Committee |

Where is an oil-pressure sending unit located?

a. Next to spark plug

b. In cylinder head

c. In fuel line

d. After oil pump

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.....

1. | G1 | a | Goodheart | 0194 | C | A. Herd |

What triggers spark plug firing?

a. Breaker points opening

b. Condenser being charged

c. Breaker points closing

d. Magnetic field decreasing

.....

2. | G1 | c | Goodheart | 0194 | C | A. Herd |

Which ignition system part is used to create a spark in the combustion chamber?

a. Conductor

b. Points

c. Spark plug

d. None of the above

.....

3. | G1 | b | Goodheart | 0194 | C | A. Herd |

More voltage is required to jump from clean, sharp electrodes than from dirty, eroded ones.

a. True

b. False

.....
4. | G2 | b | AAVIM | 0194 | C | A. Herd |

When the spark plug fires ATDC, it is called advanced ignition timing.

a. True

b. False

.....
5. | G2 | d | AAVIM | 0194 | C | A. Herd |

Which is true regarding the position of the crankshaft when the valves open and close?

a. Same for all small engines

b. Called the firing order

c. Based on piston travel in inches per degree

d. Varies with different engines

.....
6. | G2 | a | AAVIM | 0194 | C | A. Herd |

Engine backfiring through the carburetor is a sign of a bad intake valve.

a. True

b. False

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.....
7. | G3 | a | AAVIM | 0194 | C | A. Herd |

Some breaker points are assembled as one unit with the condenser.

a. True

b. False

.....
8. | G3 | a | AAVIM | 0194 | C | A. Herd |

An ignition file can be used to remove pits from a worn set of points.

a. True

b. False

.....
9. | G3 | b | AAVIM | 0194 | C | A. Herd |

When using a continuity light to time the opening of the breaker points, the engine should be running at its lowest speed.

a. True

b. False

.....
10. | G4 | a | AAVIM | 0194 | C | A. Herd |

In a solid-state ignition system, current is directed to the coil through a series of transistors.

a. True

b. False

.....
11. | G4 | c | Amer. Tech. | 0194 | C | A. Herd |

Which material prevents the flow of electricity?

a. Voltage

b. Magneto

c. Insulator

d. Circuit

.....
12. | G4 | b | Goodheart | 0194 | C | A. Herd |

The ignition switch is the most vulnerable part of the solid-state ignition system.

a. True

b. False

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.....
13. | G5 | c | AAVIM | 0194 | C | S. Chamberlain |

On a spark plug, where does the spark jump?

a. From threads to the head

b. From insulator to the outer electrode

c. From center electrode to the outer electrode

d. From terminal to the rim

.....
14. | G5 | b | Briggs | 0194 | C | A. Herd |

On engines equipped with electronic ignition, the flywheel must rotate at 1000 rpm or more to properly test ignition.

a. True

b. False

.....
15. | G5 | d | Briggs | 0194 | C | A. Herd |

What should be done if the solid-state ignition module is suspected to be faulty?

a. Test solid-state module.

b. Check air gap.

c. Check leads for grounding or loose connections.

d. All of the above

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.....
1. | H1 | a | Briggs | 0194 | C | A. Herd |

A loose o-ring seal between the oil-fill tube and sump will cause crankcase vacuum loss.

a. True

b. False

.....
2. | H1 | a | Briggs | 0194 | C | A. Herd |

What is meant by the "type" of oil?

a. Service classification

b. Viscosity

c. Grade

d. Maximum operating temperature

.....
3. | H1 | c | Briggs | 0194 | C | A. Herd |

A common method of lubricating moving parts in four-cycle engines involves a dipper on which part?

a. Camshaft

b. Crankshaft

c. Connecting rod

d. Piston

.....
4. | H2 | b | Briggs | 0194 | C | A. Herd |

When checking the breather, a .045" wire gauge should enter the space between the disk and valve body.

a. True

b. False

.....
5. | H2 | a | Briggs | 0194 | C | A. Herd |

The breather's function is to maintain vacuum in the crankcase.

a. True

b. False

.....
6. | H2 | a | Briggs | 0194 | C | A. Herd |

When oil leaks out through the breather, it is a sign of a clogged breather valve or worn or damaged parts.

a. True

b. False

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.....

7. | H3 | c | McGraw-Hill | 0194 | C | A. Herd |

When is sludge more likely to form?

a. Hot weather

b. High-speed operation

c. Cold weather

d. Changeable weather

.....

8. | H3 | a | AAVIM | 0194 | C | A. Herd |

What is the main function of oil in a small engine?

a. Keep metal parts from rubbing together

b. Cool the small engine

c. Clean the small engine

d. Seal four-stroke engine parts

.....

9. | H3 | d | McGraw-Hill | 0194 | C | A. Herd |

Which small engine lubrication system is similar to the system used on automobiles?

a. Barrel-type pump

b. Ejection pump

c. Constant-level splash

d. Full pressure

.....
10. | H4 | d | McGraw-Hill | 0194 | C | A. Herd |

Which lubrication system is most commonly used on small engines?

a. Constant-level

b. Full pressure

c. Barrel-type pump

d. Splash

.....
11. | H4 | a | McGraw-Hill | 0194 | C | A. Herd |

The dipper is designed to pick up oil from the crankcase on every revolution of the crankshaft.

a. True

b. False

.....
12. | H4 | a | Briggs | 0194 | C | A. Herd |

The oil slinger is driven by the cam gear.

a. True

b. False

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.....
13. | H5 | a | Hobar | 0194 | C | A. Herd |

If a breather is removed for inspection or valve repair, a new gasket should be used when replacing the breather.

a. True

b. False

.....
14. | H5 | a | Hobar | 0194 | C | A. Herd |

Failure to service the breather may cause ruptured oil seals and gaskets, resulting in oil leaks.

a. True

b. False

.....
15. | H5 | b | Hobar | 0194 | C | A. Herd |

To replace a leaking oil seal, it is usually necessary to remove the crankshaft or bearing support.

a. True

b. False

.....
16. | H6 | a | Lawn Boy | 0194 | C | A. Herd |

As long as there is fuel in the fuel tank, the two-cycle engine is always lubricated.

a. True

b. False

.....
17. | H6 | b | Lawn Boy | 0194 | C | A. Herd |

When fueling a two-cycle engine, it is OK to mix the fuel directly in the mower tank.

a. True

b. False

.....
18. | H6 | b | Lawn Boy | 0194 | C | A. Herd |

As a substitute, it is OK to use any automotive oil to mix with the gasoline for two-cycle fuel.

a. True

b. False

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.....
19. | H7 | a | Goodheart | 0194 | C | A. Herd |

It is a good policy to check the oil level each time the engine is refueled.

a. True

b. False

.....
20. | H7 | a | Goodheart | 0194 | C | A. Herd |

Multigrade or multiviscosity oils are those which meet the viscosity requirements of two or more SAE grades.

a. True

b. False

.....
21. | H7 | a | Goodheart | 0194 | C | A. Herd |

Detergents suspend dirt and sludge in oil so the contaminants can be trapped by a filter or readily drained.

a. True

b. False

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.....

1. | I1 | b | MAVCC | 0194 | C | A. Herd |

The flywheel is a component of the cooling system.

a. True

b. False

.....

2. | I1 | c | MAVCC | 0194 | C | A. Herd |

Which cooling system component covers the flywheel and directs air over the engine fins to promote cooling?

a. Filter screen

b. Air deflector

c. Shroud

d. Flywheel

.....

3. | I1 | b | Goodheart | 0194 | C | A. Herd |

What carries away most of the heat that reaches the cooling fins?

a. Radiation

b. Convection

c. Conduction

d. None of the above

.....
4. | I2 | d | Goodheart | 0194 | C | A. Herd |

What surrounds the cylinders of water-cooled engines?

a. Cooling water tubes

b. Insulation material

c. Cooling fins

d. Water jacket

.....
5. | I2 | c | Goodheart | 0194 | C | A. Herd |

What is the heat-sensing device that maintains a constant engine operating temperature?

a. Rheostat

b. Check valve

c. Thermostat

d. Flexible impeller

.....
6. | I2 | c | Goodheart | 0194 | C | A. Herd |

What will the engine do if the thermostat is stuck open?

a. Overheat

b. Start hard

c. Warm up slowly

d. Warm up quickly

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.....

7. | I3 | a | IML Mod. 4 | 0194 | C | Ken Hutcherson |

The thermostat and coolant temperature sending unit should be replaced on an engine that has severely overheated.

a. True

b. False

.....

8. | I3 | c | Sears | 0194 | C | Committee |

What does it mean if a water pump leaks from the weep hole?

a. System is low

b. System is overfull

c. Pump seals are bad

d. All of the above

.....

9. | I3 | d | IML Mod. 4 | 0194 | C | Ken Hutcherson |

Before replacing a water pump, radiators without a drain cock are drained through what means?

a. Plug provided in the water pump

b. One of the heater hoses

c. Top radiator hose outlets

d. Lower radiator hose outlets

.....
10. | I4 | a | Amer. Tech. | 0194 | C | A. Herd |

A thermostat regulates the flow of coolant.

a. True

b. False

.....
11. | I4 | b | Amer. Tech. | 0194 | C | A. Herd |

It is NOT necessary to remove the thermostat before the cooling system is flushed.

a. True

b. False

.....
12. | I4 | a | Amer. Tech. | 0194 | C | A. Herd |

The liquid used in a cooling system to carry the heat away is usually a mixture of ethylene glycol and water.

a. True

b. False

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.....
13. | I5 | a | Goodheart | 0194 | C | A. Herd |

Removing the radiator cap from a hot radiator can be very dangerous.

a. True

b. False

.....
14. | I5 | a | Goodheart | 0194 | C | A. Herd |

Which tester is best for testing a coolant's freezing point in a radiator?

a. Hydrometer

b. Centrifuge

c. Synchro-graph

d. Spectrum-analyzer

.....
15. | I5 | b | Briggs | 0194 | C | Committee |

When pressure-testing radiators, pressurize 20% over the cap rating.

a. True

b. False

.....
16. | I6 | b | Goodheart | 0194 | C | A. Herd |

Most radiator repair shops recommend refilling radiators with plain tap water.

a. True

b. False

.....
17. | I6 | a | Prentice-Hall | 0194 | C | A. Herd |

The cooling system should be flushed and refilled with fresh coolant every two years.

a. True

b. False

.....
18. | I6 | b | Prentice-Hall | 0194 | C | A. Herd |

By what means are radiators without a drain cock drained?

a. Top radiator hose outlets

b. Lower radiator hose outlets

c. One of the heater hoses

d. A plug provided in the water pump

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.....
1. | J1 | b | Goodheart | 0194 | C | A. Herd |

Clogged mufflers seldom cause power loss and overheating.

a. True

b. False

.....
2. | J1 | a | AAVIM | 0194 | C | A. Herd |

The two-cycle engine has an exhaust port about midpoint on the cylinder.

a. True

b. False

.....
3. | J1 | b | AAVIM | 0194 | C | A. Herd |

The muffler does NOT need to be removed on a two-cycle engine to service the exhaust ports.

a. True

b. False

.....
4. | J2 | a | Briggs | 0194 | C | A. Herd |

Mufflers should be checked periodically by squeezing a cold muffler barrel with your hand. If the barrel is soft, the muffler should be replaced.

a. True

b. False

.....
5. | J2 | a | Briggs | 0194 | C | A. Herd |

A muffler that is the wrong size will cause the engine to perform improperly.

a. True

b. False

.....
6. | J2 | a | Briggs | 0194 | C | A. Herd |

When installing a new muffler, lubricate the threads with anti-seizing compound and hand-tighten.

a. True

b. False

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.....

1. | K1 | b | Briggs | 0194 | C | A. Herd |

When installing a spring on the recoil starter pulley, always wind the spring clockwise.

a. True

b. False

.....

2. | K1 | a | Briggs | 0194 | C | A. Herd |

To restore tension in a recoil starter, straighten the starter spring.

a. True

b. False

.....

3. | K1 | a | Briggs | 0194 | C | A. Herd |

When selecting new starter rope, the part number determines the correct length and diameter of the rope.

a. True

b. False

.....
4. | K2 | b | Briggs | 0194 | C | A. Herd |

Before replacing the starter clutch, heavily lubricate the end of the crankshaft.

a. True

b. False

.....
5. | K2 | a | Briggs | 0194 | C | A. Herd |

The sealed starter clutch can be disassembled for cleaning.

a. True

b. False

.....
6. | K2 | b | Briggs | 0194 | C | A. Herd |

The wedging steel balls found in a starter must be packed in grease to prevent them from rusting and moving.

a. True

b. False

70

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.....

1. | L1 | c | Auto Mech. CRT | 0194 | C | D. Hevel |

The solenoid engagement terminal should be receiving current when the ignition is in which position?

a. Key on

b. Key off

c. Engine crank

d. Accessory

.....

2. | L1 | b | Auto Mech. CRT | 0194 | C | D. Hevel |

What would most likely cause an ohmmeter to give an infinite reading between the solenoid engagement terminal and ground?

a. Low circuit resistance

b. Open coil circuit

c. Excessive battery drain

d. None of the above

.....

3. | L1 | d | AAVIM | 0194 | C | A. Herd |

High voltage is produced in the ignition coil when what occurs?

a. Magnet passes the coil

b. Intake valve closes

c. Carburetor shuts

d. Points open

.....
4. | L2 | a | Briggs | 0194 | C | A. Herd |

When starter motor brushes are worn to less than 1/4", replace the end cap assembly.

a. True

b. False

.....
5. | L2 | a | Briggs | 0194 | C | A. Herd |

The starter motor housing contains two powerful ceramic magnets that may crack if the motor housing is clamped in a vise or struck with a hammer.

a. True

b. False

.....
6. | L2 | b | Briggs | 0194 | C | A. Herd |

Interference may result if match marks and through bolts are placed in the same position as when removed.

a. True

b. False

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.....

7. | L3 | b | Auto Mech. CRT | 0194 | C | D. Corbin |

Which step should be performed before a starter is removed?

a. Disconnect charging system

b. Disconnect battery negative cable

c. Disconnect fuel system

d. None of the above

.....

8. | L3 | b | Auto Mech. CRT | 0194 | C | D. Corbin |

A starter should be replaced if its drive teeth are worn.

a. True

b. False

.....

9. | L3 | a | Briggs | 0194 | C | A. Herd |

Incorrect assembly of black and white wires from the cord to rectifier will cause the starter motor to run backwards.

a. True

b. False

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.....

1.	M1	a	IML Mod. 7	0194	C	S. Chamberlain

What should be done when working on an engine?

a. Place all loose parts in a container.

b. Keep the parts on the bench.

c. Place all loose parts in a pocket.

d. None of the above

.....

2.	M1	d	Briggs	0194	C	A. Herd

Which is NOT required for an engine to run?

a. Ignition

b. Compression

c. Fuel

d. Air filter

.....

3.	M1	a	Briggs	0194	C	A. Herd

A sheared flywheel key on an electronic ignition will change ignition timing, but there will still be spark at the tester.

a. True

b. False

.....
4. | M2 | a | Lawn Boy | 0194 | C | A. Herd |

A leaky reed valve on a two-stroke engine will cause engine sputter and stalling.

a. True

b. False

.....
5. | M2 | b | Briggs | 0194 | C | Committee |

A fuel filter needs to be changed only when nearly clogged.

a. True

b. False

.....
6. | M2 | a | Briggs | 0194 | C | A. Herd |

All carburetor adjustments must be made with the air cleaner installed.

a. True

b. False

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.....

7. | M3 | d | Briggs | 0194 | C | A. Herd |

What can cause a loss of compression?

a. Cylinder head gasket blown

b. Piston rings not sealing

c. Valves sticking

d. All of the above

.....

8. | M3 | b | Briggs | 0194 | C | A. Herd |

When installing a head gasket, always use a sealer.

a. True

b. False

.....

9. | M3 | a | Briggs | 0194 | C | A. Herd |

Under full load, the exhaust valve temperature can reach 1200F or more.

a. True

b. False

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.....

1. | N1 | a | AAVIM | 0194 | C | A. Herd |

A short block includes the cylinder block, crankcase assembly, piston, rings and valves.

a. True

b. False

.....

2. | N1 | c | AAVIM | 0194 | C | A. Herd |

What effect will a partially sheared flywheel key or twisted crankshaft have on four-stroke engine performance?

a. Shorten spark plug life

b. Increase engine speed

c. Throw off timing

d. No real effect

.....

3. | N1 | a | AAVIM | 0194 | C | A. Herd |

Some four-stroke engines are equipped with a crankshaft counterbalance to overcome vibration caused by piston motion.

a. True

b. False

.....
4. | N2 | c | AAVIM | 0194 | C | A. Herd |

Which four-stroke cycle does this describe:
Piston moves down, intake valve opens, fuel-air mixture enters combustion chamber, exhaust valve remains closed.

a. Compression

b. Exhaust

c. Intake

d. Power

.....
5. | N2 | b | AAVIM | 0194 | C | A. Herd |

On which stroke does the exhaust valve open and gases exit from the combustion chamber?

a. Compression

b. Exhaust

c. Intake

d. Power

.....
6. | N2 | a | AAVIM | 0194 | C | A. Herd |

On which stroke does the piston move up, while both valves remain closed?

a. Compression

b. Exhaust

c. Intake

d. Power

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.....
7. | N3 | b | Briggs | 0194 | C | A. Herd |

On a four-stroke engine, all cylinder head bolts are the same length.

a. True

b. False

.....
8. | N3 | a | AAVIM | 0194 | C | A. Herd |

If the camshaft and crankshaft do not have timing marks, mark them with a center punch before removing them.

a. True

b. False

.....
9. | N3 | b | AAVIM | 0194 | C | A. Herd |

Marking timing marks before disassembly will change the engine's balance.

a. True

b. False

.....
10. | N3 | b | AAVIM | 0194 | C | A. Herd |

On a four-stroke engine, it does NOT matter in which hole the tappets are replaced since both are identical.

a. True

b. False

.....
11. | N4 | b | AAVIM | 0194 | C | A. Herd |

If the four-stroke cylinder is not too far out of tolerance, how can it be repaired?

a. Surface grinding

b. Reboring

c. Reaming

d. Drilling

.....
12. | N4 | b | AAVIM | 0194 | C | A. Herd |

Four-stroke cylinders are measured for wear at the bottom before rotating the gauge 45 degrees and measuring again.

a. True

b. False

.....
13. | N4 | d | AAVIM | 0194 | C | A. Herd |

What is the area of greatest wear on a four-stroke cylinder?

a. Where the piston skirt travels

b. Lowest point of travel for the bottom piston ring

c. Middle of the cylinder

d. Upper end of the top ring travel

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.....
14. | N5 | a | AAVIM | 0194 | C | A. Herd |

Some four-stroke piston rods and caps are marked with matching notches so they can be replaced in the same position after they are removed.

a. True

b. False

.....
15. | N5 | b | AAVIM | 0194 | C | A. Herd |

On a four-stroke engine, the piston-rod assembly is removed by disconnecting the rod from the camshaft.

a. True

b. False

.....
16. | N5, O5 | a | AAVIM | 0194 | C | A. Herd |

A broken ring makes an excellent tool for removing carbon from the ring groove of a four-stroke engine.

a. True

b. False

.....

| 17. | N5 | b | AAVIM | 0194 | C | A. Herd |

How many rings are there on a four-stroke engine piston?

a. Two

b. Three

c. Four

d. Five

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.....
18. | N6 | c | AAVIM | 0194 | C | A. Herd |

If there is an oil leak with no evidence of a bent crankshaft, what should be replaced in a four-stroke engine?

a. Rings

b. Head gasket

c. Oil seal

d. Rod bearings

.....
19. | N6 | a | AAVIM | 0194 | C | A. Herd |

How do most ball bearings fit on the crankshaft of a four-stroke engine?

a. Press fit

b. Loose fit

c. Welded fit

d. Grease fit

.....
20. | N6 | a | AAVIM | 0194 | C | A. Herd |

Crankshaft bearings are NOT removed unless there are indications that they are worn or damaged.

a. True

b. False

.....
21. | N7 | a | AAVIM | 0194 | C | A. Herd |

Too little valve clearance can be corrected by grinding the valve stem tip.

a. True

b. False

.....
22. | N7 | b | AAVIM | 0194 | C | A. Herd |

On a four-stroke valve train assembly, too much clearance causes valves to open too early and to close too late.

a. True

b. False

.....
23. | N7 | a | AAVIM | 0194 | C | A. Herd |

Some four-stroke engines designed for continuous operation have rotators, which turn the valves as they operate.

a. True

b. False

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.....
24. | N8 | a | AAVIM | 0194 | C | A. Herd |

Which describes the torque measurement for small engine head bolts?

a. Pound inches

b. Newtons per dyne

c. Pound feet

d. Centimeters per gram

.....
25. | N8 | b | AAVIM | 0194 | C | A. Herd |

What is a heli-coil used for?

a. Tighten springs on valves

b. Replace stripped threads

c. Make a bolt larger in diameter

d. Bend a reed valve

.....
26. | N8 | b | AAVIM | 0194 | C | A. Herd |

On most four-stroke engines, the intake valve spring is heavier than the exhaust valve spring.

a. True

b. False

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.....

1.	01	a	AAVIM	0194	C	A. Herd

Small, two-stroke engines have no valves in the combustion chamber.

a. True

b. False

.....

2.	01	a	AAVIM	0194	C	A. Herd

Most valves used on two-stroke engines are of the reed type.

a. True

b. False

.....

3.	01	b	AAVIM	0194	C	A. Herd

On most two-stroke engines, the head must be removed to access the valves.

a. True

b. False

4.	02	a	AAVIM	0194	C	A. Herd

A two-stroke engine can be properly lubricated at any angle.

a. True

b. False

5.	02	b	AAVIM	0194	C	A. Herd

Two-stroke engines have a sealed crankcase with an oil sump.

a. True

b. False

6.	02	a	AAVIM	0194	C	A. Herd

Two-stroke engines are used on chain saws.

a. True

b. False

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.....

7. | 03 | b | AAVIM | 0194 | C | A. Herd |

Two-stroke engines have oil-control rings.

a. True

b. False

.....

8. | 03 | a | AAVIM | 0194 | C | A. Herd |

On some two-stroke engines, the piston-and-rod assembly is removed from the bottom of the cylinder.

a. True

b. False

.....

9. | 03 | a | AAVIM | 0194 | C | A. Herd |

To gain access to the rod-bearing cap, remove the carburetor and reed plate.

a. True

b. False

.....
10. | 04 | b | AAVIM | 0194 | C | A. Herd |

Pistons on two-stroke engines generally have three rings.

a. True

b. False

.....
11. | 04 | a | AAVIM | 0194 | C | A. Herd |

Two-stroke engines have no oil-control rings since the oil is mixed with the fuel.

a. True

b. False

.....
12. | 04 | b | AAVIM | 0194 | C | A. Herd |

Cylinders on two-stroke engines wear mostly at the bottom.

a. True

b. False

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.....
13. | 05 | b | AAVIM | 0194 | C | A. Herd |

A piston ring extender can be used to stretch the ring and thus compensate for worn rings.

a. True

b. False

.....
14. | 05, N5 | a | AAVIM | 0194 | C | A. Herd |

A broken ring makes an excellent tool for removing carbon from the ring groove of a four-stroke engine.

a. True

b. False

.....
15. | 05 | b | AAVIM | 0194 | C | A. Herd |

The best way to check for ring wear is to measure the end gap with the ring inserted inside the piston, rather than in the cylinder.

a. True

b. False

.....
16. | O6 | c | AAVIM | 0194 | C | A. Herd |

Where might a hard-to-start two-stroke engine be leaking?

a. Intake and exhaust valves

b. Crankcase oil breather

c. Crankshaft oil seals

d. Carburetor intake

.....
17. | O6 | a | AAVIM | 0194 | C | A. Herd |

A newly installed crankshaft that still binds indicates a warped housing.

a. True

b. False

.....
18. | O6 | b | AAVIM | 0194 | C | A. Herd |

To replace a leaking oil seal, it is usually necessary to remove the crankshaft.

a. True

b. False

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.....
19. | 07 | c | AAVIM | 0194 | C | A. Herd |

How are reed valves opened?

a. Spring pressure

b. Action of the camshaft

c. Crankcase vacuum and atmospheric pressure

d. Spring tension on the exhaust valve

.....
20. | 07 | d | AAVIM | 0194 | C | A. Herd |

Which describes two-stroke engine components?

a. Spring-loaded tappets to open the valves

b. Eight reed valves (four intake and four exhaust)

c. Crankcase oil pushing on hydraulic lifters

d. Some type of reed valve assembly

.....
21. | 07 | a | AAVIM | 0194 | C | A. Herd |

Which is NOT a material for constructing the reed valves on a two-stroke engine?

a. Bamboo

b. Spring steel

c. Plastic

d. Phenolic

.....
22. | 08 | a | AAVIM | 0194 | C | A. Herd |

How many rings are there on a modern two-stroke engine piston?

a. Two

b. Three

c. Four

d. Five

.....
23. | 08 | a | AAVIM | 0194 | C | A. Herd |

If any dimension in the cylinder exceeds the factory allowance, the cylinder will require resizing.

a. True

b. False

.....
24. | 08 | a | Goodheart | 0194 | C | Committee |

Some two-stroke pistons have piston-ring locating dowels.

a. True

b. False

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1. | P1 | a | MAVCC | 0194 | C | G. Marshall |

In a manual transmission with three forward gears, which gear on the counter shaft is the largest?

a. First

b. Second

c. Third

d. Reverse

.....

2. | P1 | c | MAVCC | 0194 | C | G. Marshall |

What does the input shaft in a manual transmission drive?

a. Output shaft

b. Speed gears

c. Counter shaft

d. Flange gear

.....
3. | P2 | b | Sears | 0194 | C | G. Marshall |

Mechanic A says a differential is a device that changes the motion of an input shaft to horizontal output.

Mechanic B says a differential allows one wheel to rotate at a different speed than the other. Who is correct?

a. Mechanic A

b. Mechanic B

c. Either one

d. Neither one

.....
4. | P2 | a | Sears | 0194 | C | G. Marshall |

A transaxle is a combination of which of the following?

a. Engine, transmission, axle

b. Transmission, differential, axles

c. Wheels, axles, transmission

d. Transmission and steering gear

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5. | P3 | c | Sears | 0194 | C | G. Marshall |

What makes up an expanding-shoe clutch?

a. Drum, clutch band, shoes

b. Armature assembly, pressure plate, clutch spring

c. Drum, clutch spring, shoes

d. Clutch disk, pressure plate, shoes

.....

6. | P3 | c | Sears | 0194 | C | S. Chamberlain |

Belt-tensioning clutches use what type of pulleys?

a. Clutch collar worm

b. Outer slip belt

c. Transmission, tension idler, engine pulley

d. None of the above

.....

7. | P3 | a | Sears | 0194 | C | S. Chamberlain |

An electromagnetic clutch is made up of a rotor assembly, a pulley-and-armature assembly, a bearing collar and a spring.

a. True

b. False

8.	P3	b	Sears	0194	C	S. Chamberlain

The bearing collar is used in the disk-and-plate type of clutch.

a. True

b. False

9.	P3	c	Sears	0194	C	S. Chamberlain

If the clutch engaging spring fails, what will happen?

a. Nothing

b. The mower will turn over.

c. The mower will have trouble moving.

d. The mower will not stop.

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10. | P4 | b | Sears | 0194 | C | G. Marshall |

Which is NOT a part of a hydrostatic drive system?

a. Charge pump

b. Clutch plate

c. Fluid motor

d. Check valves

.....
11. | P4 | a | Sears | 0194 | C | Committee |

On a hydrostatic transmission, vehicle speed is varied by the amount of oil flow.

a. True

b. False

.....
12. | P4 | d | Sears | 0194 | C | Committee |

What is the proper fluid to use in a hydrostatic transmission?

a. 5W-30 oil

b. 50 wt. oil

c. Brake fluid

d. Hydraulic oil

.....
13. | P5 | b | MAVCC | 0194 | C | G. Marshall |

What are the three types of brake systems found on power equipment?

a. Electromagnetic, disk, dynamic

b. External band, drum, disk

c. Dynamic, friction, shoe

d. Drum, disk, shoe

.....
14. | P5 | a | MAVCC | 0194 | C | G. Marshall |

A brake cam is found on what type of brake system?

a. Disk

b. Dynamic

c. Drum

d. All of the above

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1. | Q1 | b | IML Mod. 4 | 0194 | C | Ken Hutcherson |

A small amount of grease should be used to quiet a noisy V-belt.

a. True

b. False

.....

2. | Q1 | b | IML Mod. 4 | 0194 | C | Ken Hutcherson |

Technician A says that V-belts should ride on the bottom of the pulley groove.

Technician B says that a V-belt that is worn and slick can slip, even if it is overtightened. Who is correct?

a. Technician A

b. Technician B

c. Both Technician A and Technician B

d. Neither Technician A nor Technician B

.....

3. | Q1 | a | Auto. Mech. CRT | 0194 | C | Committee |

A belt-tension gauge can be used to determine needed V-belt adjustment.

a. True

b. False

.....
4. | Q2 | b | Briggs | 0194 | C | A. Herd |

Balancing the blade after sharpening is time-consuming and doesn't affect the operation of the engine.

a. True

b. False

.....
5. | Q2 | a | Briggs | 0194 | C | A. Herd |

When installing a rotary blade, the bolt should be torqued 45-60 foot-pounds.

a. True

b. False

.....
6. | Q2 | a | Briggs | 0194 | C | A. Herd |

An inexpensive blade balancer can be purchased at a hardware store.

a. True

b. False

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7. | Q3 | a | Briggs | 0194 | C | A. Herd |

To adjust control cables, start the engine and check out the safety system. How soon must the blade stop upon release of blade control?

a. Three seconds

b. Five seconds

c. Seven seconds

d. Nine seconds

.....

8. | Q3 | a | Briggs | 0194 | C | A. Herd |

Use a penetrating oil or liquid graphite on control cables twice during the operating season to keep them free.

a. True

b. False

.....

9. | Q3 | b | Briggs | 0194 | C | A. Herd |

How much travel of the remote control wire is allowable when making remote control adjustments?

a. 1"

b. 1 3/8"

c. 3"

d. 4 1/2"

.....

10. | Q4 | b | Briggs | 0194 | C | A. Herd |

Wheels should be lubricated once during the mower's life.

a. True

b. False

.....

11. | Q4 | d | Goodheart | 0194 | C | A. Herd |

What should NOT be worn when working around small engines?

a. Loose clothing

b. Jewelry

c. Neckties

d. All of the above

.....

12. | Q4 | a | IML Mod. 4 | 0194 | C | Ken Hutcherson |

Belts that function as a pair should be replaced as a pair.

a. True

b. False

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13. | Q5 | b | IML Mod. 4 | 0194 | C | Ken Hutcherson |

The oil filter gasket should be left dry when a new oil filter is installed.

a. True

b. False

.....

14. | Q5 | a | IML Mod. 4 | 0194 | C | Ken Hutcherson |

Many oil filter manufacturers recommend tightening their oil filters a specific amount after the gasket contacts the sealing base on the engine.

a. True

b. False

.....

15. | Q5 | a | Briggs | 0194 | C | A. Herd |

Keep a record of oil changes on a small engine. Change oil every 25 hours of operation.

a. True

b. False

.....
16. | Q6 | a | Sears | 0194 | C | A. Herd |

If the drive brake cannot be correctly adjusted, the pads should be replaced.

a. True

b. False

.....
17. | Q6 | b | Sears | 0194 | C | A. Herd |

What is OSHA's maximum stopping distance allowed before a garden tractor's brakes must be adjusted?

a. 2'

b. 6'

c. 9'

d. 12'

.....
18. | Q6 | a | Sears | 0194 | C | A. Herd |

The clutch/brake pedal has two functions--as a clutch and as a brake.

a. True

b. False

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19. | Q7 | d | Sears | 0194 | C | A. Herd |

If the tractor moves slower or stops when the clutch is engaged, what should be done?

a. Adjust the clutch.

b. Replace the motion drive belt.

c. Check the motion drive belt's installation.

d. All of the above

.....

20. | Q7 | d | Sears | 0194 | C | A. Herd |

If belt noise can be heard when the clutch/brake pedal is released, what should be done?

a. Check the routing of the belt.

b. Make sure the belt is inside all belt guides.

c. Adjust the clutch.

d. All of the above

.....

21. | Q7 | d | Sears | 0194 | C | A. Herd |

What might need replacing when the mower blades will not rotate?

a. Attachment clutch switch

b. Frozen pulley

c. Mower drive belt

d. All of the above

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1. | R1 | c | VICA | 0889 | C | Fred Smith |

Which is a poor reason for students to enroll in occupational training programs?

a. To work toward a career

b. To develop business and industry contacts

c. To avoid taking math, science, or English classes

d. To work toward financial independence

.....

2. | R1 | a | VICA | 0889 | C | Fred Smith |

Only one VICA club per school is allowed.

a. True

b. False

.....

3. | R1 | d | VICA | 0889 | C | Fred Smith |

How many VICA districts does Missouri have?

a. 3

b. 5

c. 7

d. 9

.....

4.	R1	b	VICA	0889	C	Fred Smith

In which national VICA region is Missouri located?

a. 3

b. 4

c. 5

d. 6

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5. | R2 | b | VICA | 0889 | C | Fred Smith |

Personal values rarely affect career choices.

a. True

b. False

.....

6. | R2 | a | VICA | 0889 | C | Fred Smith |

A career should align with one's personal values, interests, and abilities.

a. True

b. False

.....
7. | R3 | b | VICA | 0889 | C | Fred Smith |

Effective decision-making can be broken down into six steps.

a. True

b. False

.....
8. | R3 | b | VICA | 0889 | C | Fred Smith |

A new supervisor should be liked by all workers in order to be effective.

a. True

b. False

.....
9. | R3 | d | VICA | 0889 | C | Fred Smith |

Which goal should a supervisor work toward in order to succeed and improve worker morale?

a. Keep attention on getting work done

b. Be as fair as possible

c. Avoid taking a worker's negative feelings personally

d. All the above

.....
10. | R3 | a | VICA | 0889 | C | Fred Smith |

To be more productive, workers need ways to measure and use time more effectively.

a. True

b. False

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11. | R4 | d | VICA | 0889 | C | Fred Smith |

Which trait or traits do employers expect from their employees?

a. Cooperation and acceptance of evaluation

b. Honesty

c. Initiative

d. All of the above

.....
12. | R4 | d | VICA | 0889 | C | Fred Smith |

Which characteristic should employees expect from their employers?

a. Understanding of job requirements

b. Fair payment for labor

c. Equal treatment for all employees

d. All of the above

.....
13. | R4 | a | VICA | 0889 | C | Fred Smith |

Effective communication, care for people, flexibility, dependability, optimism, and perseverance are traits of good leaders.

a. True

b. False

.....
14. | R5 | a | VICA | 0889 | C | Fred Smith |

Good table manners include entering into table conversation.

a. True

b. False

.....
15. | R5 | b | VICA | 0889 | C | Fred Smith |

A coatroom clerk at a restaurant is usually NOT tipped.

a. True

b. False

.....
16. | R5 | a | VICA | 0889 | C | Fred Smith |

Employees should stand when an authority figure (employer) joins them for a meal.

a. True

b. False

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17. | R6 | b | VICA | 0889 | C | Fred Smith |

It is a good idea to use big words when writing in order to impress people.

a. True

b. False

.....
18. | R6 | a | VICA | 0889 | C | Fred Smith |

Self-concept affects verbal communication.

a. True

b. False

.....
19. | R6 | a | VICA | 0889 | C | Fred Smith |

When speaking, always use a vocabulary that others can understand.

a. True

b. False

.....
20. | R7 | a | VICA | 0889 | C | Fred Smith |

Professionals respect themselves and others.

a. True

b. False

.....
21. | R7 | a | VICA | 0889 | C | Fred Smith |

A person's code of ethics defines his or her principles or standards of right and wrong.

a. True

b. False

.....
22. | R7 | a | VICA | 0889 | C | Fred Smith |

A professional code of ethics includes both legal and moral standards.

a. True

b. False

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23. | R8 | a | VICA | 0889 | C | Fred Smith |

Appropriate business attire for men would include a traditional dark suit.

a. True

b. False

.....

24. | R8 | a | VICA | 0889 | C | Fred Smith |

Fashion accessories reflect the self-image of an individual.

a. True

b. False

.....

25. | R8 | a | VICA | 0889 | C | Fred Smith |

Getting plenty of sleep and avoiding junk food can improve personal appearance.

a. True

b. False

.....
26. | R9 | a | VICA | 0889 | C | Fred Smith |

A resume is a well-organized overview of what one has to offer an employer.

a. True

b. False

.....
27. | R9 | a | VICA | 0889 | C | Fred Smith |

A letter of application should ask an employer for an interview.

a. True

b. False

.....
28. | R9 | a | VICA | 0889 | C | Fred Smith |

The local chamber of commerce can help people research employers.

a. True

b. False

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29.	R10	a	VICA	0889	C	Fred Smith

When parliamentary procedures are used at a meeting, only one subject at a time should be discussed.

a. True

b. False

.....

30.	R10	a	VICA	0889	C	Fred Smith

Parliamentary procedure calls for the finishing of old business before new business is started.

a. True

b. False

.....

31.	R10	a	VICA	0889	C	Fred Smith

Parliamentary procedure calls for standing committee reports to be given before special committee reports.

a. True

b. False

.....

32.	R10	a	VICA	0889	C	Fred Smith

Proper use of the gavel signals members to stand or sit.

a. True

b. False